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INTERNATIONAL BULLETIN OF PLANT PROTECTION

1938 No. 9

DISCOVERIES AND CURRENT EVENTS *

Argentine Republic: 'Corazón Mohoso' of Apple: Its Origin, Severity, and Methods of Control †

'Corazón mohoso' (apple core mould) is a fairly widespread disease in the orchard districts of the Rio Negro and Neuquén.

Preliminary research work has shown that this affection is connected with a disease recorded by M. Juan Barcia Trelles, regional agricultural engineer for the Rio Negro, in a paper laid before the IVth National Congress of Fruit Culture at San Juan in 1936. The Phytopathological Division of the 'Dirección de Sanidad Vegetal', moreover, already possessed data on a similar disease on several occasions found in apples imported from the United States of America.

Apples attacked by the disease are distinguishable from healthy fruit by their more rapid coloration, as though ripening prematurely. This characteristic is particularly striking in the 'Deliciosa colorada' variety, which is peculiarly liable to the affection.

Diseased apples continue to remain attached to the tree for a long time, as the stalk is not affected, and the fruit falls only when the internal lesion is serious and the pulp infected. Another noticeable external symptom is the deformation of the fruit (asymetrical fruit), especially among the worst affected trees.

In all cases it is necessary to cut the fruit in two to discover the presence of the disease, which starts in the ovary by a mouse-grey coloured mould, and may partially or completely cover the seed cavity.

The ovary usually remains open at the top in affected fruit. The pips present different degrees of alteration and are more or less invaded by the mould, which often completely envelops them.

* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from the official correspondent of the Institute, Mr. JUAN B. MARCHIONATTO, Agricultural Engineer, Director of 'Sanidad Vegetal', Ministry of Agriculture, Buenos Aires, Argentine Republic.

The characteristics of this disease are similar to those described in the United States, Canada, New Zealand and Australia by the names Alternaria rot, blossom-end rot, core mould, and mouldy core.

The disease is fostered by all sorts of factors (defective pollinization, blight of the floral organs, etc.) which prevent the fruit from closing up completely, thus exposing the ovary to direct contact with the exterior. As regards last year's harvest in the Argentine Republic the trouble is attributed mainly to the spring frosts that occurred during the blossoming and fruiting season of the apple trees.

The examination of a number of apples of the ' Deliciosa ' variety, of different sizes, shows fecundation to have been normal, as pips were formed; while, however, some of these were fully developed, others remained atrophied.

Secondary infections may sometimes occur in well-developed fruit, caused by other agents, such as the ' arañuela parda ', to which the ' Deliciosa ' variety is particularly liable, and thrips.

According to research abroad, it would appear that ' corazón mohoso ' is caused by one or several species of *Alternaria*; research in the Argentine Republic has enabled us to isolate a fungus whose microscopic and biological characteristics correspond to those of *Alternaria mali* Rob., recognised in the United States as one of the agents of fruit rot.

' Corazón mohoso ' has been found in apples of the Delicious, Red Delicious, Gravenstein, Stayman, Winesap and Jonathan varieties. In other countries it has been noted in Winesap, Pippin and Cleopatra varieties, which are also cultivated in the Republic.

In the upper valley of the Rio Negro and the Neuquén, this disease frequently occurs in apples of the ' Deliciosa ' and ' Deliciosa colorada ' varieties, from 15 to 30 per cent. of the crops having been found to be affected. It has made only negligible inroads among other varieties.

The damage caused by ' corazón mohoso ' may assume serions proportions where local conditions encourage its development, as was the case in Argentina last year.

The disease occurred more especially in districts where frost had been particularly severe; certain local influences, however (the state of blossoms or fruit, direction of the wind, topographical conditions of the land, etc.) attenuated the influence of this phenomenon, and the degree of damage done varied in fruit in the same orchard.

For all these reasons fruit-growers ought to keep a vigilant eye on the state of their orchards, so as to avoid the depreciation of the fruit harvest by buyers who know about ' corazón mohosa ' and who seize the occasion to beat down the current market price of the produce by 30 per cent and more.

Measures against ' corazón mohoso ' should above all aim at preventing the action of factors that favour the entrance of the fungi. Special attention during spring frosts is regarded as the most effective means of prevention.

Different methods are put forward for combating the effects of frost, but the only method that has given practical satisfaction has been the artificial heating of orchards.

It being easy to ascertain the presence of 'corazón mohoso' in affected trees by the colour and premature ripeness of the apples, these should be gathered at once so as to prevent the transmission of the rot to sound fruit. Once the apples han been gathered the best method of preserving them is to place them in cold storage, as cold arrests the progress of the disease.

Eritrea: Locusts *

During the month of June 1938, no locusts were reported in the Colony.

Madagascar: A List of Parasites and Diseases of Cultivated Plants. †

This list, drawn up in March 1938, continues those published in 1932, 1934 and 1937 (see this *Bulletin*, 1932, No. 7, pp. 105-107; 1934, No. 5, pp. 99-100, and 1937, No. 4, pp. 66-68).

COFFEE.	
	Fasciation.
PEACH.	
	Sphaerotheca pannosa (Wallr.) Lév.
	Gummosis.
APPLE.	
	Phyllosticta pirina Sacc.
	Rosellinia necatrix (Hart.) Berl.?
MULBERRY.	
	Kuehneola fici Butler.
EUCALYPTUS.	
	Mycosphaerella sp.
MANGO.	
	Erysiphe polygoni DC. ?
	Cephaleuros virescens Kunze.
ROSE.	
	Marssonia rosae (Bon.) Br. and Cav.
	Mycosphaerella sp.
	Sooty mould.
ARAUCARIA.	
	Gummosis.

* Communication from Dr. LUIGI M. BOLOGNA, Chief of the Agricultural Bureau of Eritrea, Asmara, transmitted to the Institute by the Government of the Colony.

† Communication from the official correspondent of the Institute, M. G. BOURIQUET, Director of the Laboratory of Phytopathology, Pasteur Institute, Antananarivo, Madagascar.

EGGPLANT.	
	Leveillula taurica (Lév.) Arnaud.
	Cladosporium sp.
SORGHUM.	
	Puccinia purpurea Cke.
VOANDZEIA SUBTERRANEA.	
	Cercospora sp.
	Phaeolus manihotis Heim.
POTATO.	
	Spongospora subterranea (Wallr.) Johnson.
	Fusarium sp.
SOY BEAN.	
	Coniothyrium sp.
TURNIP.	
	Cystopus candidus (Pers.) Lév.
ROSE GERANIUM.	
	Colletotrichum sp.
NASTURTIUM.	
	Oidiopsis taurica (Lév.) Salmon.

Southern Rhodesia: Locust Invasion, 1932-1938 *

Monthly Report No. 66. May, 1938.

Winged swarms of the Red Locust (*Nomadacris septemfasciata*, Serv.) have been reported from various districts of the Colony during the month, including Melsetter, Inyanga, Makoni, Marandellas, Salisbury, Mazoe, Lomagundi, Charter and Wankie.

All but one of these swarms have been described as large and some as very large.

Considerable damage appears to have been inflicted on native crops in part of the Zambezi Valley by newly matured swarms.

Compared with the previous three years, the number of reports of locusts during May, which is the month when most, if not all of the locusts in the Colony have matured, shows no sign of decrease. The number of reports received in May, 1938 is, in fact, by a small margin the largest during the four years concerned and there is no indication of diminution in the size of the swarms.

A large proportion of the swarms are judged to have matured in the low veld both within Southern Rhodesia and in Portuguese Territory, but breeding

* Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F. E. S., Chief Entomologist, Department of Agriculture, Salisbury, Southern Rhodesia.

also occurred on higher ground within the Colony to a greater extent than in any year since 1935, when natural agencies reduced a vast invasion to almost negligible proportions. Since that year neither disease nor parasites have been seriously in evidence.

Reports from Tanganyika, Nyasaland, Bechuanaland and the Union of South Africa during April indicate a generally satisfactory position in regard to the Red Locust, but a recrudescence of the swarm cycle in Southern Africa is not beyond the bounds of possibility. Such a recrudescence would, apparently, repeat the experience during the last swarm cycle of this species which came to an end in 1910.

The Union of South Africa reports increased activity on the part of the Brown Locust (*Locustana pardalina*, Wlk.) with invasion of new districts and extensive egg-laying. The outbreak is as yet far to the south of Southern Rhodesia, but the next few years may show whether or not it is possible to keep this species under full control. Southern Rhodesia is directly concerned with the result, and it is to be hoped that success will attend the efforts of our southern neighbours.

Italian Somaliland: Locusts *

No locusts were reported in the Colony during the month of June, 1938.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — By Circular of May 20, 1938 it is laid down that not only thrushes but also blackbirds, according to the Game Law of July 3, 1934 are to be considered as game. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang Juli 1938, 18. Jahrg., Nr. 7, S. 66).

*** By Decree of June 15, 1938 modifying the Decree of July 17, 1934 relative to the application of the measures regarding the use of highly toxic preparations [see this *Bulletin*, 1934, No. 11, p. 247] in the control of plant diseases and pests, it is prohibited to employ arsenical mixtures containing over 0.10 per cent. of arsenic. The use of compounds and arsenical preparations in powder form other than those recognized by the Central Plant Protection Service as suitable for this purpose is also prohibited. The arsenic content should not exceed 8 per cent. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Juli 1938, Bd. X, Nr. 5, S. 98).

*** By two Decrees of May 16 and June 16, 1938 the Minister of Agriculture has modified the Decrees of October 20, 1937, January 19, and March 5, 1938 [see this *Bulletin*, 1938, No. 2, p. 29; No. 6, p. 125, and No. 7, p. 149]

* Communication from Dr. Luigi Bozzi, Chief of the Agricultural Services of Italian Somaliland, Mogadiscio, transmitted to the Institute by the Government of the Colony.

and has granted further facilities for the import and transit of horticultural products from France, Belgium, Luxemburg and Switzerland.

Cucumbers and melons grown under glass may be imported throughout the year.

Consignments should be accompanied by a certificate of origin and condition issued by an officer of the Plant Protection Service of the country of origin. A certificate testifying that the products in question are greenhouse crops will also be required. (*Ibid.*, S. 98-99).

Germany (Bavaria). — By Notification of March 25, 1938 relative to the control of wart disease of the potato [*Synchytrium endobioticum*], as from 1941 the cultivation of potato varieties other than those known to be resistant to this disease is prohibited. The cultivation of non-resistant varieties, still permitted, is restricted however, to a limited number of varieties of which a list is given. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Juli 1938, Bd. X, Nr. 5, S. 101).

*** By two Decrees of April 11 and May 11, 1938 relative to the control of cock chafers [*Melolontha*] the users of all farm land are obliged to lend their assistance in the control of these insects when requested and in accordance with the instructions of the Plant Protection Service. Access to their land should be allowed to all persons engaged in this campaign. (*Ibid.*, S. 102).

Germany (Hamburg). — By Notification of June 4, 1938 the cultivation of potato varieties, other than those recognized as resistant to wart disease [*Synchytrium endobioticum*] or else the non-resistant varieties 'Industrie' and 'Erstling', still permitted, is prohibited up to February 28, 1941. The two latter varieties, however, must not be cultivated in small town gardens. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Juli 1938, Bd. X, Nr. 5, S. 102-103).

Germany (Prussia). — By Decree of March 26, 1938 relative to the control of *Depressaria nervosa*, persons in the Leer circumscription engaged in cummin cultivation are required to treat their crops with certain insecticides at a period indicated by the competent authorities. The cummin should be threshed immediately after harvesting. The stalks must be destroyed by fire. Storage of unthreshed cummin is prohibited. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Juli 1938, Bd. X, Nr. 5, S. 103).

Germany (Wurtemberg). — By Notification of February 4, 1938 relative to the control of the wart disease of the potato [*Synchytrium endobioticum*], a list is given of the seven potato varieties non-resistant to wart disease which may be cultivated up February 28, 1941. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Juli 1938, Bd. X, Nr. 5, S. 103-104).

Chili. — Decree No. 233 of April 19, 1938 modifies Decree No. 505 of February 11, 1925 regulating the law on phytosanitary organization, especially in regard to the obligation of proprietors to immediately report the appearance

of infectious diseases or pests, and also the duties of the Plant Protection Service in the control of these diseases or pests. (*Diario Oficial de la República de Chile*, Santiago, 14 de junio de 1938, año LXI, núm. 18,091, pág. 1731).

Colombia. — The Resolution No. 258 of June 8, 1937 aims *inter alia* at determining the diseases and pests existing in the cacao growing area; ascertaining the possible presence in this area of witch's broom disease [*Marasmius perniciosus*]; inspecting the cacao imported from Ecuador through the port of Tumaco with a view to ascertaining whether it is attacked by the aforesaid parasite or any other disease dangerous to Colombian crops; adopting the necessary preventive measures. (*Diario Oficial*, Bogotá, 12 de marzo de 1938, año LXXIV, núm. 23727, pág. 909).

*** By Decree No. 141 of January 28, 1938 a campaign has been organized for the control of witch's broom disease [*Marasmius perniciosus*] in the cacao plantations of Barbacoas Province, Department of Nariño, seriously infected with this fungus. (*Ibid.*, 7 de marzo de 1938, núm. 23722, págs. 828 y 829).

*** By Decree No. 199 of February 5, 1938 a Technical Commission has been established at the Ministry of Agriculture and Commerce for the control of mosaic disease of sugar cane and also for the protection and promotion of this crop. (*Ibid.*, 4 de abril de 1938, núm. 23745, págs. 35 y 36).

Egypt. — By Decree-Law No. 35 of March 31, 1938 for preventing the spread of the cotton worm [*Prodenia litura*] through the cultivation of bersim [*Trifolium alexandrinum*], the watering of Meskawi bersim crops is prohibited after May 10 of each year.

The appearance of the cotton worm in a bersim crop should be reported without delay by the proprietor or holder to the omdeh or sheik of the district; this information should be transmitted immediately to the competent officer of the Ministry of Agriculture.

If the cotton worm has spread in a field of bersim to such an extent that it forms a danger to neighbouring crops, the agricultural inspector of the mudirieh will ascertain the condition of the crop and order its mowing, ploughing the land or any other measure which he may consider necessary to prevent propagation of the worm.

Law No. 6 of 1913 to prevent the spread of the cotton worm through bersim cultivation is abrogated. (*Journal Officiel du Government Egyptien*, Le Caire, 4 avril 1938, 65ème année, nº 42, p. 2).

United States of America. — The revision of the rules and regulations (sixteenth revision), supplemental to Notice of Quarantine No. 48 (twelfth revision) on account of the Japanese beetle (*Popillia japonica*) has been approved on April 6, 1938 and is effective on April 11, 1938.

Unless a certificate or permit has been issued, these regulations as now revised, prohibit the inter-state shipment of green corn on the cob, beans in the pod, bananas in entire bunches or in clusters of 25 or more, apples, peaches, blackberries, blueberries, huckleberries, or raspberries from the regulated areas, to or through points outside; and also prohibit (unless a certificate or permit has been issued) the inter-state movement of all fruits and vegetables by refrigerator car or motor-truck from the District of Columbia, the State of Delaware, and parts of the States of Maryland, New Jersey, Pennsylvania, and Virginia, to or through points outside the regulated areas. Refrigerator cars used for loading fruits and vegetables, other than onions and potatoes, in such area must, prior to loading, be cleaned by the common carrier and kept tightly closed and sealed during the interval between cleaning and loading. Onions and potatoes must be fumigated in the car when such action is deemed necessary by the inspector, and doors and hatches of the cars must be closed or screened.

The regulations also prohibit the interstate shipment of plants, sand, soil, earth, peat, compost, and manure from any part of the regulated areas to or through any outside point throughout the year unless a Federal permit or certificate has been secured. Portions of plants and cut flowers are restricted interstate movement only between June 15 and October 15, inclusive.

The regulated areas include the District of Columbia, the entire States of Connecticut, Delaware, Massachussetts, New Jersey, and Rhode Island, and parts of the States of Maine, Maryland, New Hampshire, New York, Ohio, Pennsylvania, Vermont, Virginia, and West Virginia.

These regulations also place certain restrictions to protect restricted articles from infestation while in transit, require thorough cleaning of vehicles and containers which have been used in transporting restricted products, and provide other safeguards and conditions. (*B. E. P. Q. – Q. 48*, [Washington, D. C.], 1938, 14 pp., 1 map).

Italy. — By Royal Decree-Law No. 278 of March 10, 1938 a credit of 1,200,000 lire was granted to cover expected expenditure of the Ministry of Agriculture and Forests for the year 1937-38. This sum is to cover grants to the owners of citrus plantations, such grants representing the State contribution to the cost of measures of control of the ' mal secco ' disease of citrus [*Deuterophoma tracheiphila*] in Sicily and of the reconstitution of destroyed or infected plantations undertaken during the year 1937-38. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 12 aprile 1938, anno 79°, n. 84, pp. 1387-1388).

*** Royal Decree-Law No. 279 of March 10, 1938 authorizes the Ministry of Agriculture and Forests to contribute to the cost of measures taken to control citrus scale insects in 1938. A credit of 2,700,000 lire is granted for this purpose to meet the estimated expenditure of the Ministry in the year 1937-38. Of this sum, 300,000 lire will take the form of grants to owners of citrus plantations as a contribution towards the expenses occasioned by control measures

undertaken in 1937. The remainder (2,400,000 lire) will be distributed as the State contribution to the expenditure under the same head in 1938. (*Ibid.*, p. 1388).

*** The Royal Decree Law No. 408 of March 10, 1938 introduces measures for the reconstitution of vineyards destroyed by grape phylloxera in the island of Pantelleria. (*Ibid.*, 5 maggio 1938, n. 102, p. 1696).

*** By Ministerial Decree of May 19, 1938 the control of the olive fly [*Dacus oleae*] by means of arsenical spraying has been made compulsory, during the year 1938, throughout the territory of the commune of Lesina in the province of Foggia. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 16 giugno 1938, anno X, n. 12, pp. 977-978).

*** A Decree of the Minister of Finance, dated June 8, 1938, extends the exchange tax, as from June 15, 1938, at the reduced rate of 0.75 lire per cent., to the parasiticides delivered to the trade under the names ' Sulfo invernale 30-32° Bé ', ' Sulfo invernale 20-22° Bé ', ' Sulfo estivo 30-32° Bé ', ' Sulfo estivo 20-22° Bé ', ' Cupro ', ' Cupritox ', ' Cortilan ', ' Paramaag ', ' Minol ', ' Pirox', ' Nicamon' and ' Flux'. (*Gazzetta Ufficiale del Regno d'Italia*, 25 giugno 1938, anno 79°, n. 143, p. 2621).

*** The Prefectoral Decree No. 13080 of June 14, 1938 authorizes, under certain conditions, the destruction of sparrows attacking the wheat crops in the province of Reggio Emilia. (*Bollettino Agricolo della provincia di Reggio-Emilia*, Reggio-Emilia, 16 giugno 1938, anno XXXVIII, n. 24, p. 3).

*** By Law No. 1005 of June 16, 1938, the Royal Decree-Law No. 278 of March 10, 1938 relative to the control of the ' mal secco ' disease of citrus [*Deuterophoma tracheiphila*] in Sicily during the 1937-1938 season has been made Law. (*Gazzetta Ufficiale del Regno d'Italia*, 21 luglio 1938, n. 164, p. 3026).

*** By Law No. 1006 of June 16, 1938, the Royal Decree-Law No. 408 of March 10, 1938 relative to the re-establishment of the vineyards destroyed by grape phylloxera in the island of Pantelleria has been made Law. (*Ibid.*).

*** By Law No.1007 of June 16, 1938, the Royal Decree-Law No. 279 of March 10, 1938 relative to the control of citrus scale insects during the 1938 season has been made Law. (*Ibid.*, p. 3027).

*** A Decree of the Head of the Government, dated June 22, 1938, modifies the import duties on pyrethrum flowers and pyrethrum extract. (*Ibid.*, 24 giugno 1938, n. 142, pp. 2608-2609).

Morocco (French Zone of). — A Decree of June 1, 1938 authorizes the destruction of wild boars which have been causing serious damage to crops in the territory of the civil control posts of Oulmès and Tedders. (*Bulletin Officiel*, Rabat, 10 juin 1938, XXVII[e] année, nº 1337, p. 761).

*** A Decree of June 20, 1938 authorizes the destruction of rabbits which have been causing important damage in the district lying between the river Grou and the south border of the Sehoul forest. (*Ibid.*, 1[er] juillet 1938, nº 1340, p. 876-877).

Mexico. — A Decree of 17 May, 1938 authorizes the temporary exemption of import duty on gaseous products and agricultural implements employed in the control of the banana disease known as 'chamusco' [Sigatoka disease, *Cercospora musae*], in the States of Tabasco and Chiapas. (*Diario Oficial*, México, 3 de junio de 1938, tomo CVIII, núm. 21, págs. 1 y 2).

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